Dancing with storks: The role of power relations in Payments for Ecosystem Services

Hiroe Ishihara, Unai Pascual and Ian Hodge

Abstract

The institutional change induced by payments for ecosystem services (PES) schemes is a 'messy' process. The uptake and outcomes of PES schemes cannot be fully explained from a rational choice perspective. The notion of 'institutional bricolage' is needed to analyse how actors assemble or reshape their actions by combining new institutions such as a PES scheme within other locally embedded institutions. A case study from Japan is used to illustrate how a PES scheme designed to conserve the habitat of a charismatic and endangered flagship species, the Oriental White Stork, has been reshaped by social actors to fit the locally dominant 'institutional logic'. We also show how the resulting institutional change is not only able to subvert policy makers' original assumptions, for instance about how to target and distribute the payments, but can also contribute to the reproduction of unequal power relations.

Keywords

Institutional bricolage, power relations, agency, payments for ecosystem services, environmental governance, common pool resources

1. Introduction

The use of economic incentives, such as so-called payments for ecosystem services (PES), continues to gain increasing attention in environmental policy circles as an efficient and potentially equitable tool for environmental governance, including the conservation of biodiversity (Pascual et al., 2014). Here PES is defined broadly as a transfer of resources between actors, which aims to create incentives, subject to clear conditions, to align individual and/or collective resource use decisions with the social interest in the management of natural resources (modified from Muradian et al., 2010). The burgeoning research on PES schemes indicates that i) implementation of PES schemes is not a straightforward process as rational choice models might suggest (e.g Osborne, 2011; Rodríguez-de-Francisco and Budds, 2015; Rodríguez de Francisco et al., 2013; Vatn, 2010), ii) there is a high degree of complexity associated with the trade-offs between cost-effectiveness and other policy goals, such as social equity (e.g. Pascual et al., 2010; Pascual and Phelps, 2014), and iii) the introduction of PES impacts on power relations amongst stakeholders (e.g. Milne and Adams, 2012; Rodríguez-de-Francisco and Budds, 2015).

We argue that the introduction of PES schemes is often associated with a layer of complexity because ecosystem service providers are not just suppliers of such services but are also 'institutional bricoleurs' who rearrange the standardised PES-logics in order to 'fit' their own (local) social context. The term 'bricoleurs' implies that actors creatively combine elements from different institutional contexts into a new institutional arrangement (Christiansen, Larke and Lounsbury, 2013). This concept enables us to challenge the view of actors as powerless victims of institutional change. The application of the notion of institutional bricolage is helpful in undertaking power-sensitive analysis of environmental governance and can contribute to the inclusion of power relations into the ecosystem services framework (Berbés-Blázquez et al., 2016; Pascual and Phelps, 2014; Van Hecken et al., 2015). We borrow the term 'institutional bricolage' from cultural anthropology (Douglas, 1986; Lévi-Strauss, 1966) and organisational studies (Christiansen, Larke and Lounsbury, 2013; Lounsbury and Glynn, 2001; Schneiberg, 2002) and adapt it to conceptualise a process in which actors assemble or reshape existing (often local) institutions, such as collective action norms in the management of common pool resources (hereafter CPR), by combining them with a recently introduced PES scheme. We also

argue that due to institutional bricolage, the introduction of PES can often lead to a 'messy' institutional process with unintended consequences.[1]

A case study from a rural community in Japan within Toyoka City is presented to illustrate the application of the idea of 'institutional bricolage' and show how it helps to analyse the ways in which a PES scheme may lead to messy institutional change. This PES scheme has been introduced as an incentive to support the conservation of a flagship endangered species, the Oriental White Stork (*Ciconia boyciana*), which is on the IUCN Red List of Threatened Species and can only be found in Japan, South Korea, China and Russia. More generally, in Japan, PES approaches have been heralded as tackling the problem of under-use, rather than over-exploitation, of CPRs (see Section 3.1. for a description of problems caused by the under-use of CPRs). Since the 1990s, in Toyoka city, the local government has implemented eco-certification schemes for organic farming and eco-tourism to tackle this problem (Hyogo Prefectural Government, 2009). Toyoka city is considered to be one of the success stories in the use of a broadly defined PES scheme, along with Osaki City and Sado City, where similar schemes supporting flagship species have been implemented (Honda, 2008a; Wittmer and Gundimeda, 2010).[2]

The case study from Toyoka city reveals how community residents act as institutional bricoleurs rearranging the PES-logic to 'fit' their own local context and to reproduce or change the power relations within their community. It illustrates that the implementation of a PES scheme is not just about incentivising people to align their resource use decisions with broader social interests but also about power struggles among stakeholders, such as between policy makers and local residents as well as among the residents themselves.

---

[1] 'Messy' institutional process does not imply that deliberate institutional design is necessarily impossible. Each actor will act deliberately to achieve their own goal and use their resources to negotiate the institutional outcome. However, we term this process as 'messy' because it is not the deliberation of one actor or one social group, such as the implementer of a PES scheme, which determines the outcome; rather it is determined by the negotiations amongst various stakeholders.

[2] Both cities use flagship species similar to that of Toyoka. In Osaki city, the protected species is a goose and in Sado city, it is the crested ibis

For details see;

http://www.biodic.go.jp/biodiversity/shiraberu/policy/pes/satotisatoyama/satotisatoyama01.html for Osaki city and

http://www.biodic.go.jp/biodiversity/shiraberu/policy/pes/satotisatoyama/satotisatoyama03.html for Sado city.

74 The next section introduces the central idea of institutional bricolage from a critical
75 institutionalist perspective. Then, Section 3 describes the background and methodology used in
76 the case study and Section 4 analyses how the PES scheme designed for the conservation of the
77 Oriental White Stork in Toyoka city was contested, altered and articulated by the local
78 community. The paper concludes with the main lessons learnt for future PES-based governance
79 of biodiversity through the lens of institutional bricolage.

80

81 **2. Setting the scene: Institutional bricolage, agency, and power**

82 In recent years the institutionalist school of thought on the study of the commons, often termed
83 critical institutionalism, has emerged to fill the gaps left by mainstream institutionalism led by
84 the work of Elinor Ostrom (e.g. Cleaver, 2012; De Koning and Cleaver, 2012; Hall et al., 2014).
85 The mainstream approach generally understands institutions as 'the rules of the game' which
86 define what actors may (permitted), must (obliged) or may not (forbidden) do (Crawford and
87 Ostrom, 1995; North, 1990). It argues that rational actors design appropriate institutions to fulfil
88 certain functions, for instance to solve collective action problems or information asymmetries
89 (Hotimsky et al., 2006). When carefully crafted, the assumption goes, CPR institutions can in
90 principle curb individuals' selfish incentives to free-ride and enhance collective action to avoid
91 the over-exploitation of the commons (McKean, 1992; Ostrom, 1990; Wade, 1989).

92 Critical institutionalists emphasize that new institutions cannot be separated from the
93 pre-existing social and cultural embeddedness of resource users and thus the messiness that
94 arises from the multiplicity of their interests and the complexity through social interactions
95 (Cleaver, 2002; Fabinyi et al., 2014; McCay, 2002; Mosse, 1997). For this school of thought,
96 resource users do not hold narrowly defined utilitarian and purely instrumental preferences
97 (Mosse, 1997). Instead they are viewed as holding multiple social identities and rationalities
98 (Schnegg and Linke, 2015). This implies that CPR use cannot be understood solely in terms of a
99 narrow desire to optimise a given objective (e.g. income maximization or risk minimization). It
100 can also be strongly influenced by other concerns and interests stemming from various social
101 identities and roles, as well as being associated with norms relating to authority/respect,
102 in-group loyalty and fairness/reciprocity (Chan et al., 2016). It follows that institutional change
103 relating to CPR use can be motivated, for example, by an elite's desire to reproduce power
104 relations (Hall et al., 2014; Hotimsky et al., 2006). It should also be pointed out that collective
105 action for the conservation of CPR does not necessarily guarantee outcomes that are either
106 socially or ecologically desirable (Ishihara and Pascual, 2009).

Critical institutionalism draws strongly on sociology and anthropology and institutions are understood as "social arrangements that shape and regulate human behaviour and have some degree of permanency and purpose transcending individual human lives and intentions" (Cleaver, 2012, p. 8). The process of institutional change is understood through the idea of 'institutional bricolage' (Cleaver, 2002; Galvan, 2004), not as an issue of 'crafting' rules (Ostrom, 1992) or of searching for 'institutional fit' (Young, 2002) but by explicitly acknowledging the 'messy' process or the 'unintended' outcomes that it may produce. The term 'bricolage' was originally used by the French anthropologist Levi-Strauss (1966) to describe how the 'savage' mind understands different cultures, and later developed by Douglas (1986) in the context of institutions, who argued that to economise on cognitive effort, actors borrow existing familiar institutions as a 'frame of reference' to understand new and 'unfamiliar' social phenomena. In the study of the commons, the use of the term institutional bricolage refers to "a process through which people, consciously and non-consciously, assemble or reshape institutional arrangements, drawing on whatever materials and resources are available, regardless of their original purpose" (De Koning and Cleaver, 2012, p. 4).

This notion of institutional bricolage enables us to better understand human agency and the dynamic power relations involved in the institutional processes that arise in the governance of the commons. At this point, we make two remarks: first, the actors involved in institutional change are not powerless victims of this process, rather they are active 'improvisers'. Drawing on Sewell (1992), we use the term human agency[3] to refer to actors' capacity to transpose and extend an 'institutional logic' to a new institutional context, where 'institutional logic' is the shared taken-for-granted social prescriptions that guide individual behaviour in an institutional context (Battilana, 2006). The institutional logic thus embodies belief systems and material practices that represent particular worldviews, valued ends, and the appropriate means to achieve such ends (Christiansen, Larke and Lounsbury, 2013). When actors are faced with new situations, they exercise their agency by extending their existing institutional logic and make do with whatever is at hand to fit the new institutional context (Baker and Nelson, 2005).

[3] Agency is temporally embedded in the past and is oriented towards the future (Emirbayer and Mische, 1998). On the one hand, because actors are born into a specific social structure, they internalise an institutional logic and follow routines forming habits or habitus (Bourdieu, 1990). On the other hand, actors face unexpected outcomes even when they follow habitus. Then they start to question what they have '*taken for granted*'. In such a circumstance, actors distance themselves from so-called common knowledge (Ishihara and Pascual, 2009), creating a space for them to reflect on their actions in relation to their circumstances.

The notion of 'institutional logic' in this paper is used in a similar sense to that of 'habitus' (Bourdieu, 1990) or 'common knowledge'[4] (Ishihara and Pascual, 2009). According to Bourdieu, habitus is similar to a 'sense of the game'. A player in a game, in our terms an institutional bricoleur, is guided by a 'sense of the game'; but at the same time, the player is not ruled by it. The player still has room to create new strategies and new moves. This is because actors are not merely embedded in one institutional logic but rather in 'multiple habitus' (Seo and Creed, 2002). For instance, an actor, such as a farmer, is *not just* a 'farmer', but is also engaged with different institutions and social groups such as neighbourhood associations and families, which yield different logics to justify various types of farming actions (Agrawal and Gibson, 1999; Cleaver, 2002; Leach et al., 1999).

At the same time, some actors have the capacity to impose their institutional logic as the legitimate worldview and by so doing become the dominant group (Bourdieu, 1989). In this case a given institutional logic assumes a dominant role (Battilana, 2006; Reay and Hinings, 2005). This leads us to our second remark: power relations are necessarily involved in any institutional change. When actors are faced with a new institutional context, they can generally contest which institutional logic is to be adopted. In other words, the institutional process involves 'battlefields of legitimacy'[5] where both dominant and marginalised actors challenge as to whose institutional logic is to be applied in guiding the process of institutional change. To this end, the use of the term power[6] in this paper refers to the power to 'naturalise' institutional logics (Haugaard, 2008) so that an institution can present itself as if it is a part of the institutional logic as "the way we do things around here" (Foucault, 1977).

Of course, some actors may resist the dominant or naturalised institutional logic. However, the possibility of resistance in the context of institutional change should not be romanticized (Van Hecken et al., 2015). We do not deny the possibility of marginalised actors challenging the naturalised institutional logic when institutions are going through transformation. The dominant actors will try to maintain their power by ensuring predictability but marginalised actors also

[4] Other authors refer to this aspect of institutions as 'institutional context' (Clegg, 2010). We acknowledge that we are not using the term logic in a strict philosophical sense. However, we chose not to use the term 'context' in order to avoid confusion with the social and cultural context in which the actors are embedded which includes wider connotations beyond institutional logic.

[5] This notion is a modification of 'battlefields of knowledge' (Long and Long, 1992) in which different actors fight over meaning and moral affiliation in order to gain dominance in a field or domain.

[6] We concur with Haugaard (2008) that we should not look for a definitive definition of power; rather consider it as a 'family resemblance' concept in line with Wittgenstein (1968).

have an interest in adopting counterhegemonic practices to diminish the legitimacy of the dominant group and thus of the dominant institutional logic (Clegg, 2010). However, obviously not all marginalised actors have the capacity to challenge or resist. Depending on their social position within the community, actors have different levels of access to physical and so-called symbolic resources (Bourdieu, 1990). As a result, they do not all have the same capacity to produce effective claims towards naturalising their own institutional logic (Battilana, 2006). In fact, it is often the case that in contrast to more powerful actors, marginalised actors have to bear the burden of proof (Kohn, 2000).

The emerging key message is that institutional bricolage, which focuses on agency embedded inside a set of power relations, enables us to better understand institutional change induced by new environmental governance approaches, such as through PES schemes (Büscher, 2012; Rodríguez-de-Francisco and Budds, 2015; Van Hecken et al., 2015). An institutional logic held by the 'experts' who introduce these approaches, i.e. policy makers and international NGOs, is not always shared with other key actors, e.g. local providers of ecosystem services. In such cases, the introduction of a PES approach to solve an environmental 'externality' provides the opportunity for local actors, both dominant and marginalised, to seek to exercise their agency in various ways. One way is for dominant actors to use this opportunity, e.g. by designing and implementing PES, to extend the legitimacy of their institutional logic and to reproduce their dominance over marginalised actors. But marginalised actors may also seize this opportunity to legitimise their own claims, such as access to certain ecosystem goods or services, demand for land tenure security, etc. which can challenge the power relations within their community (Hendrickson and Corbera, 2015; Shapiro-Garza, 2013). It is thus important to understand the institutional change induced by the introduction of PES schemes as a 'messy' process where bricoleurs continuously fight over the legitimacy of their own institutional logics. In this way, new power struggles arising from the introduction of PES schemes can be interpreted as key social inputs to be considered in their design and implementation (Muradian et al., 2013; Pascual et al., 2014; Van Hecken et al., 2015).

It also follows that institutional change is not merely a process guided by rational calculation in order to achieve an optimal solution over an externality problem. Of course, within this mainstream approach, 'second generation game theorists' incorporate bounded rationality and other types of rationalities, such as interpersonal altruism, fairness, reciprocity and inequity aversion, into a rational choice model (Narloch et al., 2012; Ostrom and Ahn, 2009). However, the problem with this kind of modelling lies in its strict adherence to methodological individualism (Peacock, 2011). Altruistic individuals may choose to act altruistically because their welfare depends on them taking an altruistic action. Here "the tight link between individual

welfare and choice of action" (Sen, 1982, p. 8) is not broken. As a result, the mainstream approach cannot fully explain other types of institutional logic such as individuals acting as part of a 'community' with which they share a common 'identity' (Martins, 2009).

3. Case study and methodology

3.1. Case study background

Many CPRs in Japan face the problem of under-use, often termed as the 'Satoyama' problem (Shimada, 2015). Historically, rural communities in Japan were heavily dependent on CPRs, such as communal forests, shallow seas, paddy fields and irrigation channels and thus developed strict institutions to avoid their over-use. These institutions are well-known for the graduated sanctions (McKean, 1992) linked to various social customs and norms that lead rule breakers to face social ostracism (Aoki, 2001).[7] This suppressed the over-use of CPRs. However, following rural depopulation and economic transformation in Japan, especially since the 1960s (Hasumi, 1990; Torigoe, 2007), the concern regarding CPRs has shifted from over-use to under-use, bringing different environmental challenges (Shimada, 2015). For example, the under-use of communal forests in Japan (called *Iriai*) causes a loss of biodiversity (Murota and Mitsumata 2004) and 'co-produced' ecosystem services (Palomo et al., 2016), such as regulating services associated with water purification and prevention of land-slides (Morimoto, 2014). Additionally, and in conjunction with the under-use problem, important traditional communal organisations and institutions, once prevalent in hamlets and villages, are being eroded (Onda, 2006). Often, these communities feel themselves heavily burdened with the responsibilities of having to continue to manage the CPRs in traditional ways (Mitsumata et al., 2008). This has led many communities to hand over their CPR management to national or local governments to avoid the burden involved (Mitsumata and Inoue, 2010; Murota and Mitsumata, 2004). Other communities have chosen to co-manage their CPRs by involving new actors from outside the local community. For instance, schemes such as the 'forest volunteer' system, where volunteers are recruited from urban areas to conduct forest management together with forest owners (Yamamoto, 2003), or the terraced paddy field owner system, where urban residents invest financially and/or provide a workforce for the conservation of traditional terraced paddy fields (Maeda and Takao, 2007; Nakajima, 2007).

[7] This custom was called '*Mura-Hachibu'*. This custom ostracises the households that violate the CPR institution from various social groups and social event organised by these groups. As Aoki (2001) argues this ostracism had a detrimental effect on the livelihoods of the villagers, the violation of CPR institutions was limited.

In this evolving social-ecological context, Toyoka City is considered by many as a success story for CPR management through the introduction of its PES scheme (Wittmer and Gundimeda, 2010). The uniqueness of this PES lies in the fact that it has been implemented as part of a policy to conserve the Oriental White Stork, a flagship species. This species, which had become extinct in Japan by the 1980s, was reintroduced in Toyoka City which offered the last available habitat in Japan (Toyoka Municipal Government, 2007a). Oriental White Storks used to live in paddy fields and the surrounding irrigation channels. But the introduction of chemical pesticides and modernization of agricultural infrastructure during the 1950s drastically changed the natural environment, making it less suitable as a stork habitat and adding pressure to other direct drivers such as excessive hunting during the 1920s and 1930s and a decrease in genetic diversity due to the shrinking population. After the reintroduction of the species, various policies were tested to improve the quality of the habitat, mainly targeted at enhancing biodiversity in the paddy fields and surrounding wetlands.

Two types of PES have been implemented in Toyoka; an eco-certification scheme and a co-management scheme. The former, called "the Dance of the Storks" (*kounotori no mai*), incentivized farmers to switch from conventional to organic farming by providing a premium price and some additional subsidies (Honda, 2008b; Kikuchi, 2006; Toyoka Municipal Government, 2007b). Further, this scheme allows consumers to pay a price premium not just for organic products but also for providing Stork habitat. The co-management scheme is still at a nascent stage and to date has only been implemented in Tai Hamlet, which is our case study site (NGO Wetlands Action Circle for Oriental White Storks, 2012). The hamlet receives limited funds from the local government and an NGO in order to conduct activities for stork conservation (for details see section 4.1.).

This paper focuses on the co-management scheme introduced in Tai Hamlet as a pilot project by the local Toyoka government and a local NGO. The hamlet is located in the northern part of Toyoka City (see map in Figure 1). In 2013, it consisted of around 50 households with a population of around 200. The hamlet suffers from an ageing and declining population: one third of the population is over 65 years old, well above the national average of 23% (Cabinet Office, 2012). Average annual per capita income is about JPY 3.5 million or ca. USD 43,750,[8] above the national average of JPY 2.9 million or ca. USD 35,750. Before the 1960s, the residents of this hamlet were heavily dependent on CPRs for their livelihoods, especially the rice paddies and shallow sea fishery. However, residents can no longer sustain their traditional

[8] Using the conversion rate of USD1= JPY80 (average rate for 2013).

livelihoods based on agriculture and fishing, and during the 1960s, the hamlet witnessed significant out-migration of young people to urban areas such as Osaka and Tokyo (Minato Community Centre, 1965). This led to the disbandment of various communal organisations, such as the young men's and women's associations. Further, during the 1960s, the remaining residents started to work outside of the hamlet, including in the adjacent Kinosaki area or the city centre of Toyoka. This diversified not only the income sources of the residents but also their interest in CPR institutions and rice cultivation activities.[9] In other words, this hamlet has gone through a gradual 'delocalization' process, through which it has become more intimately connected to actors outside the local domain (Ojha et al. 2016). In this social context, the hamlet, or at least its leaders, decided to accept the co-management scheme in 2009 by modifying the existing local institution for the management of its CPRs, particularly the terraced paddy fields.

Figure 1. Location of field study of Tai Hamlet in Toyoka City (Hyogo Prefecture, Japan)

[9] Due to this diverse interest, Tai Hamlet failed to implement farmland consolidation despite three attempts since the 1960s. To implement the consolidation project, all the paddy field owners in the hamlet had to agree to share the cost of the project. However, the hamlet failed to reach agreement due to the different interests among the land owners.

3.2. Fieldwork methods

Fieldwork was carried out in Tai Hamlet between January and December of 2010 and further short-term field visits were undertaken between 2011 and 2013 to follow up on specific issues. Methods included i) in-depth interviews with different key actors, ii) participant observation of various communal events in the hamlet, and iii) observation of meetings between the hamlet leaders and other stakeholders such as government officials and NGOs and meetings among the residents and the leadership council. The KJ method (Kawakita, 1970, 1967) (discussed below) was used for qualitative analysis of the data collected through these three complementary approaches. Discourse analysis was undertaken of government policy documents related to stork conservation and use was made of a municipal database on agricultural statistics.

Two types of interviews were undertaken in Japanese. Firstly, a series of non-structured interviews was conducted with residents of the hamlet, especially residents from older generations and members of the leadership council,[10] regarding the changes in CPR management, their livelihoods, and past as well as current life in the hamlet. The sampling for unstructured interviews used a snowball method. Through these in-depth interviews, we gained basic information on the institutional and organisational structure of the hamlet.

Subsequently, strategically targeted interviews were conducted with individuals and groups in relation to each of the various organisations in the community such as the leadership council, neighbourhood groups and fire-fighting group (see a list of communal groups in Appendix 1 and an organigram of the hamlet in Appendix 2). At least two group interviews were completed with members of each of the organisations. Initial interviews gathered general information about the organisations as well as information about interactions amongst the residents involved in them. Follow-up interviews were conducted to ask in-depth questions, especially regarding i) the roles that each organisation performs in various communal events and ii) the residents' motivation for participating in these communal events. Since these organisations are organised by gender and age, these group interviews were utilised to collect life histories from each generation and gender. Most of the interviews were carried out through personal visits, i.e.

[10] The leadership council is composed of nine members who are elected at the annual meeting by all the households in the hamlet. Once they are elected, they will serve as a 'leader' *(yakuin)* until they decide to retire. The position of 'hamlet chief' (*kucho)* is rotated among these nine members and it is this council which makes the decision regarding the hamlet and negotiates with outside parties, such as NGOs and the Toyoka local government.

297 going either to individuals' houses or to the location of the activity, since most of the groups
298 held meetings at least once a month.

299 Participant observation was conducted during various communal events associated with
300 introduction of a 'Storks labour day', e.g. negotiation between the municipal government and
301 the hamlet, as well as with traditional 'labour days', communal festivals, funerals, religious
302 events and annual meetings. This participant observation approach provided an important
303 opportunity to closely observe some of the conflicts inside the community and between the
304 community and other actors. In order to provide additional contextual information, meetings
305 held between the hamlet and the government convened to decide various issues relating to
306 conservation policy were also observed.

307 The KJ method, developed by Jiro Kawakita, was used to systematically summarise qualitative
308 data (Kawakita, 1970, 1967). The method takes three steps. First, cards are generated by
309 transcribing information from the interviews. One statement is transcribed on each card. Next,
310 cards with similar statements are clustered together. Finally, the clusters are schematised to
311 illustrate the relationships between clusters. This method makes it possible to analyse the vast
312 amount of data collected through different fieldwork methods, such as interviews and
313 participant observation, without losing its meaning; however, a weakness lies in that its
314 clustering can be rather arbitrary (Sato, 2008). The method was chosen because it affords the
315 most freedom in coding, which was necessary in order to understand the complexity of the CPR
316 institutions, especially the arrangements for the collective management of paddy fields and
317 other communal resources in Tai Hamlet. The statements quoted in the following sections have
318 been carefully chosen to represent the clusters of statements created through the KJ method.
319 They illustrate the views shared among the residents in the hamlet rather than the authors
320 attempting to rephrase them in their own words.

321

322 **4. 'Fitting' the new PES scheme to the local institutional logic in Tai Hamlet**

323 **4.1. Introduction of the co-management scheme through the Storks labour day**

324 A co-management scheme, based around a 'Storks labour day', was introduced in Tai Hamlet in
325 2009. The 'labour day' (*Hiyaku)*, is an institution for managing terraced paddy fields.
326 Cultivating paddy rice requires collective action because it utilises a gravity-fed irrigation
327 system (Onda, 2006). Under the *Hiyaku* institution, each household has to provide the labour of
328 one person, ideally the head of the household or another adult male, on certain days during the

year. While there is no formal penalty for non-attendance on labour day, attendance is checked by calling out the name of each household in front of everyone, thus creating peer-pressure that functions as an informal sanctioning mechanism. Further, if there is any absentee, the leaders will go to their house to collect the missing person.

The *Hiyaku* institution is deeply embedded in the social context of the hamlet. Although, the main purpose of the labour day was to maintain various types of infrastructure for rice production, such as irrigation channels and paths to the paddy fields, it also has religious significance. *Hiyaku* is considered as a day to recreate a spiritual pathway for ancestors so that they may come back to the village during the summer period. Further, the hamlet has a custom called 'selling-off' (*Haraimon*) which is also associated with *Hiyaku*. Historically, residents planning to migrate out of the hamlet were obliged to sell their properties, including their house, lands and terraced paddy fields because they could no longer participate in *Hiyaku* and fulfil their collective action duties. It is thus important to note that *Hiyaku* as a collective action institution goes beyond the management of CPRs within the hamlet; it also establishes the 'civic' duties of the community and cements the identity of its members.

However, the *Hiyaku*, as a deeply embedded CPR institution, has faced serious challenges as Tai Hamlet has gradually withdrawn from rice cultivation, which stopped completely in 2006. Rice production was ended for various reasons, including the effects of the Japanese Government's agricultural policy introduced to prevent excessive supply of rice, a rapidly ageing and declining population, and damage caused by wild animals, such as boar and deer. It was in this context, that a pair of Oriental White Storks arrived in the hamlet in 2007 and, along with other individual birds, began feeding on the abandoned terraced paddy fields. Because this species feeds on the managed paddy fields and surrounding wetlands, in 2008, a local NGO, the Wetlands Action Circle for Oriental White Storks (WACOWS)[11] along with the Toyoka municipal government,[12] approached the hamlet with the intention of resuming management of terraced paddy fields using volunteers from outside the hamlet.

[11] WACOW was founded by a former Toyoka government staff member who was head of the department in charge of Oriental White Stork conservation. He is also a close friend of the current mayor who is the prime driver for promoting Oriental White Stork conservation in Toyoka.

[12] Both WACOW and the local government are considered as outsiders by the residents of Tai Hamlet. From their perspective, the interests of the NGO and the local government do not coincide with those of the hamlet. For the NGO and the local government, the goal is to conserve Oriental White Storks, whereas for the hamlet, the conservation of Oriental White Storks is a means to an end, to revive their community and to bring back the younger generation.

In 2009, the Tai Hamlet leadership council[13] officially accepted the invitation to become the pilot site for a co-management scheme for terraced paddy fields for Oriental White Storks and the hamlet agreed to add a new version of *Hiyaku*, in addition to the continuing traditional labour days, known as *Kounotori Biyaku,* the Storks labour day. This new 'labour day' differs from the traditional days in two ways. Firstly, the new *Hiyaku* aims to create a habitat for Oriental White Storks, rather than to maintain infrastructure for rice cultivation. Secondly, *Hiyaku* involves both residents and actors from outside the hamlet, i.e. local NGO and Toyoka local government employees and volunteers from Osaka and Kyoto.

The Toyoka local government introduced monetary as well as in-kind payments to compensate for the cost of conservation work for Oriental White Storks, mainly the work on the Storks labour day, and to incentivise community members to participate in the conservation activities. The local government and the NGO also suggested a Storks eco-tourism project in order to raise further income through the conservation of the Storks. The local government and the NGO mobilised funds and brought external experts to help create habitat for Oriental White Storks. When implementing activities inside the hamlet, they always asked for the participation of the leadership council.

From the commencement of this co-management scheme, the stakeholders were motivated by different interests. The local government and WACOW were motivated by the conservation of Oriental White Storks and their habitat, whereas the hamlet residents, especially the leaders, were more concerned with sustaining their *Hiyaku* institution and their community as a whole. As mentioned previously, the *Hiyaku* institution was suffering from the declining population and the end of rice cultivation. Their desire to continue growing rice and to maintain *Hiyaku* is apparent in the fact that the residents, not just the leaders, often refused to refer to the terraced paddy field as "abandoned paddy fields *kousaku-hokichi*", and instead called them "fallow-land *kyukonchi*", despite the fact that they all knew that they would not resume rice cultivation in the near future. This discrepancy in the motivation caused a fierce controversy between the 'outsiders', i.e. the local government and WACOW, and the 'insiders', i.e. the residents, when the 'outsiders' tried to prioritise stork conservation goals over the needs of the community as described in the following section.

[13] The leadership council conducted all the official negotiations with the Toyoka local government and NGO and took all decisions related to the hamlet.

In the following section, based on fieldwork data, we first describe the way external payments were distributed within the community, revealing the influence of the community leaders' local institutional logic on the payment scheme's distributional design. We then discuss the conflict arising due to the rejection of the eco-tourism proposal as part of the PES scheme, by local community leaders who adhered to their own/dominant institutional logic. Finally, we argue that, most significantly, community leaders took the opportunity presented by the introduction of the PES to exercise their power to reinforce their dominant institutional logic in the face of resistance from marginalised groups.

4.2. PES design and its need to 'fit' the dominant local institutional logic

The hamlet's involvement in Oriental White Stork conservation, especially through the establishment of the Storks *Hiyaku*, has brought some financial benefits through: i) a direct financial contribution to the hamlet budget from WACOWS for the collective work that the hamlet undertakes on labour days (e.g. JPY 528,000 ca. USD 6600 in 2012), ii) fees paid by visitors to the hamlet (JPY 500 per visitor amounting to about JPY 130,000 ca. USD 1625 in 2012), iii) payments by visitors to use communal facilities such as the community centre when WACOWS or the local municipal government conducts various activities locally.[14] Together the annual income received by the hamlet is ca. USD 8,750, equivalent to about 25% of the annual hamlet budget.

The funds accruing to the hamlet are distributed through the existing 'hamlet tax' (*Ku-hi*), a monthly payment collected from each household to contribute to the hamlet budget. In 2010, the monthly payment ranged from JPY 2,800 to 5,400 (about USD 35-67.5) per month, depending on the income level and financial conditions of each household. The funds received from the conservation were used to waive the hamlet tax for August as compensation for participating in the *Hiyaku* in July. That is, each household received JPY 2,800-5,400. This distribution mechanism fits the leaders' institutional logic that the communal benefits in connection to the communal property must be distributed to the whole community in an egalitarian way. In order to reveal this institutional logic, we look into the conflict that this raised between the hamlet leaders and the local government and WACOW.

[14] According to the hamlet's financial report distributed at the annual meeting on 20th December 2012 and some interviews with members of the leadership council.

In the Autumn of 2010, the local government and WACOW suggested to the leadership council that the payment, not entirely but partially, should be distributed to individuals. They wanted to incentivise individuals, especially women and young people. Women were the ones mainly involved in implementing various conservation activities other than through the Storks *Hiyaku*, such as conducting excursions for local schools and tours for visitors. Further, the local government and WACOW were concerned about the sustainability of the co-management scheme itself. The younger generation was deemed to be vital for the survival of this PES scheme over the longer term. However, because the payments were distributed to all the households equally, the women and young people considered them as a payment to the head of household. Some residents felt that they had undertaken the work of managing the paddy fields without receiving any payment or compensation because they were not the head of household. This was especially frustrating for those women who actively participated in activities related to the conservation of the storks.

However, when the local government and the NGO suggested distributing the payments to individuals, one of the hamlet leaders refused stating that:

> *"No way! There is no need to pay individuals. They are making money from the communal property. The money should go to the hamlet not to the individual"* (Community leader during an interview after the meeting with local government and WACOW on 20th November 2010; own translation).[15]

This statement reveals hamlet leaders' institutional logic. For them, the terraced paddy fields are communal property and the benefit arising from it must be distributed to the households in an egalitarian way, not to the individuals based on their efforts towards the conservation of the habitat for the storks. Part of the institutional logic, i.e. treating the terraced paddy fields as communal property, is manifested by the fact that two households, which do not own any terraced paddy fields, have nevertheless participated in the *Hiyaku* institution because 'they are part of the hamlet'.[16] The previously mentioned custom, 'selling-off' (*Haraimon*), provides

[15] Another leader commented that:

> *"All the payment should go into the hamlet first. If it is to be distributed, it should be to the household not to the individuals, because the households are the ones providing labour for the Hiyaku and other communal duties. To be honest I do not understand why the young people are making a fuss about this. If it is distributed to the household, it is the same. No?"* (Interview conducted with community leader on 8th December 2010; own translation).

[16] According to the interview conducted with these households which do not own any rice-fields on 11th August 2010.

439 further evidence of this institutional logic. A household that moves out of the hamlet cannot
440 hold rights in the communal property because they are no longer part of the community.[17] It
441 should be noted though that the unit of reference for distributional purposes is the household,
442 not the individual. This is also reflected in various institutions within the hamlet, such as the
443 hamlet tax and the *Hiyaku* institution. It is the household which provides the labour for *Hiyaku*
444 and pays the tax.

445 The suggestion by the government and WACOW was especially problematic as it went against
446 the institutional logics. The hamlet leaders felt that the local government and the NGO were
447 prioritising stork conservation rather than their own community.[18] In other words, the leaders
448 chose to distribute the benefits from the co-management scheme through the hamlet tax system
449 so that they could reinforce the legitimacy of their institutional logic. To this end, the leaders
450 were not just powerless victims but rather actors who were able to utilise their institutional logic
451 to rearrange the PES scheme to 'fit' the local social context, and by doing so subvert some of
452 the original intention of the local government and the NGO that introduced the co-management
453 PES scheme. The local government and the NGO had to pull back from their preference for the
454 individual distributional rule, which might have challenged the legitimacy of the local
455 leadership. In fact, policy makers were heavily dependent on the hamlet leadership council for
456 implementing various activities in the hamlet.[1920] This reaction by the leaders is not surprising
457 when we consider the fact that they are faced with resistance from young people, who have
458 different interests in the CPR in the context of the 'delocalization' of the hamlet. Before going
459 into the issue of resistance to and challenges faced by the local leaders, the next section reveals
460 how far the leaders were willing to go in reinforcing the legitimacy of their institutional logic.

461

[17] This has been described as the 'duality of land ownership' by many Japanese rural sociologists. This refers to a notion strongly held in Japanese rural societies that all land, including the paddy fields, belongs to the hamlet or the village not just to the individual residents or households (Fujimura, 2001; Torigoe, 1993). In these communities, private land ownership co-exists with communal land ownership (Kada, 1997).

[18] According to a personal conversation with the hamlet chief on 20th November 2010.

[19] It is our understanding that a majority of the local government staff and the NGO leaders were also in a similar position to the hamlet leaders in their own hamlets. Thus, they were more sympathetic towards the leaders than towards the female or young residents.

[20] In the end, policy makers came up with a compromise to organize a study-tour to Lake Shinji as a form of in-kind payment. The tour was organised so that the participants would be able to enjoy sightseeing as compensation for the female residents (According to a personal conversation with local government staff on 15th August 2011).

4.3. Conflicts over the distributional design of PES under the dominant local institutional logic

The economic impacts arising from Oriental White Stork conservation in Toyoka are estimated at USD 12.5 million, or JPY 1 billion per annum (Ohnuma and Yamamoto, 2009). To further expedite the co-management in Tai Hamlet, a proposal was made by the local government and WACOW to develop an eco-tourism project within the hamlet. This proposal to develop stork eco-tourism gained momentum when the local government negotiated with the hamlet over the inclusion of the terraced paddy fields within a wetland area being designated during the 11th Conference of the Parties to the Ramsar Convention in Bucharest (the Lower Maruyama River and surrounding paddy fields). The Ramsar Convention requires protection of wetlands through domestic law (Halls, 1997) which is implemented in Japan through the 'wildlife reserve' (*choju-hogoku)* scheme under the 2002 Wildlife Protection and Hunting Law (Tanaka, 2008). Once the area is designated as a 'wildlife reserve', any kind of development project or construction work would require permission from the prefectural government and no hunting would be allowed in the area. The stork eco-tourism project was proposed as compensation for restricting future development options in Tai Hamlet.

However, the leaders' response was ambivalent at best. They argued that the eco-tourism project would only benefit certain individuals, particularly two hostel owners. For the hamlet leaders, this was especially problematic since the hostel owners were themselves members of the leadership council. They feared that if they were seen by the rest of the hamlet to be profiting from the communal property and breaking the local institutional logic, their authority could be undermined and their institutional logic delegitimized. For example, one of the hostel owners explicitly said that he did not want to be seen by other residents as gaining personal benefit:

> *It is not right to make personal profit from the communal property. What do you think others would think? We are already having a difficult time persuading villagers to join the labour days. If I do such a selfish thing, what do you think will happen?* (Member of leadership council and hostel owner in his 60s from personal interview on 13th April 2011; own translation).

The hamlet leadership thus declined the eco-tourism development proposal as part of the broader PES scheme. For the leaders, the financial returns from eco-tourism were seen as illegitimate because they would be profiting personally from the 'communal properties'. This

494 also goes against their institutional logic by which the return from the PES ought to be
495 distributed in an egalitarian way within the community. The two hostel owners, as part of the
496 hamlet leadership, were willing to voluntarily sacrifice an economic opportunity in order to
497 adhere to the local institutional logic. This shows that the leaders are not just economically
498 rational actors aiming at optimizing financial flows for the community from the terraced paddy
499 fields but actors who hold multiple social identities and rationalities within a community context
500 (Schnegg and Linke, 2015). They are capable of reinforcing the legitimacy of the dominant
501 institutional logic. Next, we analyse why such an active re-imposition of the dominant
502 institutional logic was necessary in Tai Hamlet in the context of 'delocalization'.

503

504 **4.4. Adherence to the local institutional logic and reproduction of power relations**

505 As discussed previously, the majority of the hamlet's residents have diversified their income
506 outside the hamlet. This has weakened or more precisely diversified their interests over the
507 maintenance of the traditional CPR and enabled them to challenge the legitimacy of the *Hiyaku*
508 institution. This is especially the case since the cessation of rice cultivation in 2006. Some
509 residents have openly voiced discontent during the annual community meetings when the
510 schedules for *Hiyaku* were announced by asking questions such as:

511 > *Why do we have to continue to maintain things that we do not use any more? We*
512 > *stopped cultivating rice. It is a waste of time and money. How stupid are we to continue*
513 > *carrying out Hiyaku?* (Male resident in his 70s during the annual meeting on 3rd
514 > January 2010; own translation)[21]

515 Others adopt a subtler resistance strategy by providing a substitute worker on the labour-day,
516 often an elderly female instead of a male labourer. A few households take even further measures
517 to avoid participating in *Hiyaku* and other communal obligations by obtaining residence cards

[21] Other residents express their discontent towards the *Hiyaku*, *one* stated that:

> *I understand hamlet's tradition and the importance of hiyaku and other communal obligations. I want to continue these traditions. But look at the situation. That generation (the generation of the members of leadership council) had nearly 30 people, but ours only has 2. How can we maintain the same level of work? It is not realistic. It is causing the young generation to move away from the hamlet.* (according to an interview with a female resident in her 40s, on 15th August 2010: own translation)

for their younger generation from different areas of Toyoka. This is because people who are not officially residents are not obliged to participate.

The legitimacy of the *Hiyaku* and its institutional logic have been challenged in other ways too. To illustrate this, we note a fierce controversy that occurred in 2012 over the retirement fee paid to the male fire-fighting group, which functions as an extension of the public Fire Department. Although this controversy is not directly related to the broader PES scheme and the management of the CPR institution, it reveals the more general challenges and resistance that the hamlet leaders face. In the hamlet, those who serve in the fire-fighting group receive a retirement fee from the local Fire Department when they retire at the age of 42. This fee has been paid into the hamlet budget instead of being paid to the individuals involved. The young residents, who serve as members of the fire-fighting group, have argued that individuals have the 'right' to receive the retirement fee individually since they are the ones who served as fire-fighters. They also referred to the fact that in other neighbouring hamlets, the payments are made individually. In response, the leaders fiercely accused the young residents of being 'selfish', as from their institutional logic, the retirement fee was paid for a communal activity and thus should not be paid to individuals. They argued that it was the hamlet that runs the fire-fighting group, not the particular individuals who serve in it.

Although the young residents did not succeed with their claims, this controversy within the hamlet reveals that they are gaining power to negotiate vis-a-vis their leaders in the hamlet. The younger residents do not adhere to the same institutional logic as the leaders and have shown they are capable of challenging it publicly. This is mainly because the younger generations are not 'educated' in the communal customs and the institutional logic that runs through them. Due to the rapid fall in population, many communal groups have disappeared or become dormant over the past 50 years, such as the youth association and agricultural association. In the past, as the young male residents grew older, they 'graduated' from one group to the next, learning 'the right way of doing things'. However due to the disappearance of these groups and the engagement with the world outside of the hamlet, the younger generation is now exposed to different types of institutional logic, including those that emphasize individualistic norms.[22] It

[22] But at the same time, the disappearance of communal groups has negatively impacted the younger generations. Their claim was easily silenced by the leaders as 'ignorant' due to their lack of 'education' in communal customs and the institutional logic. Further, the younger generations are not represented in the leadership council. Previously when the hamlet was cultivating rice, all the young residents joined the agricultural association. If they could prove themselves in this association, they would then be given an opportunity to join the leadership council. However, since this association is now dormant, young people cannot prove themselves, resulting in a stagnation in the membership of the leadership council. In fact,

546 is in this context that the leaders chose to sacrifice their individual gains by forgoing the
547 opportunity presented by the stork eco-tourism project. By showing their adherence to their
548 institutional logic, the leaders are demonstrating that their institutional logic is the 'right way of
549 doing things' in Tai Hamlet in the face of the resistance from the younger generation.

550 This controversy shows that the legitimacy of the dominant institutional logic, that the benefits
551 arising from communal activities should be distributed in an egalitarian manner, has been
552 seriously challenged. The introduction of the PES scheme presented an opportunity for the
553 dominant group, the hamlet leaders, to re-assert their institutional logic as the legitimate view of
554 the world vis-a-vis the marginalised group, the younger generation. In order to do so, the
555 dominant group had to negotiate the distribution mechanism and to forego the eco-tourism
556 project. The case of Tai Hamlet illustrates that although the introduction of the PES scheme
557 contributed to the reproduction of power relations within the hamlet, the dominant actors did not
558 have a free hand in doing so. Rather it is a 'battlefield of legitimacy' where the dominant and
559 marginalised actors fight over whose logic should be applied to a new institutional context, i.e.
560 the new PES scheme.

561

562 **5. Conclusions**

563 This paper has applied the idea of institutional bricolage to analyse a situation where PES
564 schemes are introduced, creating a 'messy' institutional transformation process in the context of
565 the management of CPRs. By means of a case study of a hamlet community in Japan, in the
566 context of the conservation of the Oriental White Stork, we have shown that the leaders of the
567 hamlet actively incorporated a PES scheme as a new conservation institution, in light of their
568 own local institutional logic. The case study shows that the community leaders used the
569 introduction of the PES scheme as an opportunity to reinforce the eroding legitimacy of the
570 traditional CPR institution and their dominant institutional logic i.e. that the benefits from the
571 management of the CPR should be shared in an egalitarian way among the households of the
572 community instead of being targeted to individuals. At the same time, we revealed that the
573 leaders are faced with severe resistance from marginalised actors, especially from the younger
574 residents. It is in the context of this resistance that the leaders re-asserted their institutional logic
575 as the legitimate worldview. This case study illustrates how the notion of institutional bricolage

---

the current leadership council has not had a new member for more than 10 years and the youngest member is already in his 50s.

576 can help to unravel the agency and power relations involved in the introduction of a collective
577 PES instrument.

578 This connects with Norgaard's (2010) notion of 'complexity blinder'. He argued that the PES
579 discourse blinds us to the complexity of ecosystems and ecosystem service co-production. Here
580 we go further by uncovering another layer of social-ecological complexity, i.e. the complexity
581 of power relations. We argue that the introduction of a PES scheme as a new institution in any
582 social context induces a 'battlefield of legitimacy' as to who has the right to dictate the new
583 institutional process. Actors produce their own interpretations of the logic of PES and utilise
584 those interpretations to extend their interests and goals, leading to a 'messy' institutional
585 process. In this way, dominant actors, in our case study the leaders of Tai Hamlet in Toyoka
586 City, have managed to impose their interpretation of a fair distribution of the payments onto
587 non-dominant actors, such as the younger residents, closing down alternative interpretations of
588 what is just or fair, providing institutional stability, and (re)producing power relations in the
589 community. The study demonstrates that the institutional change induced by a PES is loaded
590 with subtle political struggles between the dominant and marginalised groups and their
591 associated interests.

592 So then, how can the application of this idea of institutional bricolage help to better capture the
593 implications of PES interventions? First, it calls for the analysis of agency and power relations
594 arising from the implementation of PES schemes. This is especially important considering the
595 popularity of such schemes that embody trade-offs between conservation goals and complex
596 social equity considerations (Milne and Adams, 2012; Pascual et al., 2010). The implementation
597 of PES schemes requires an assessment of agency and power relations in local social-cultural
598 contexts, especially with regard to the perspectives, or institutional logics of marginalised actors
599 (Berbés-Blázquez et al., 2016; Shapiro-Garza, 2013). Second, the notion of institutional
600 bricolage contributes to the re-politicisation of the PES discourse which has often been obscured
601 by neoliberal terminology (Milne and Adams, 2012). In this regard, a key challenge lies in
602 effectively communicating to policy makers the social complexity surrounding the need for the
603 re-politicisation of PES schemes and to get beyond purely technical debates about their design
604 and implementation. This calls for research to engage in the co-production of knowledge with
605 stakeholders to improve the understanding and thus the co-design of PES schemes in order to
606 take account of 'messy' institutional processes.

607 **Appendix 1. List of communal groups in Tai Hamlet and number of interviews and**
608 **participant observations conducted in these groups**

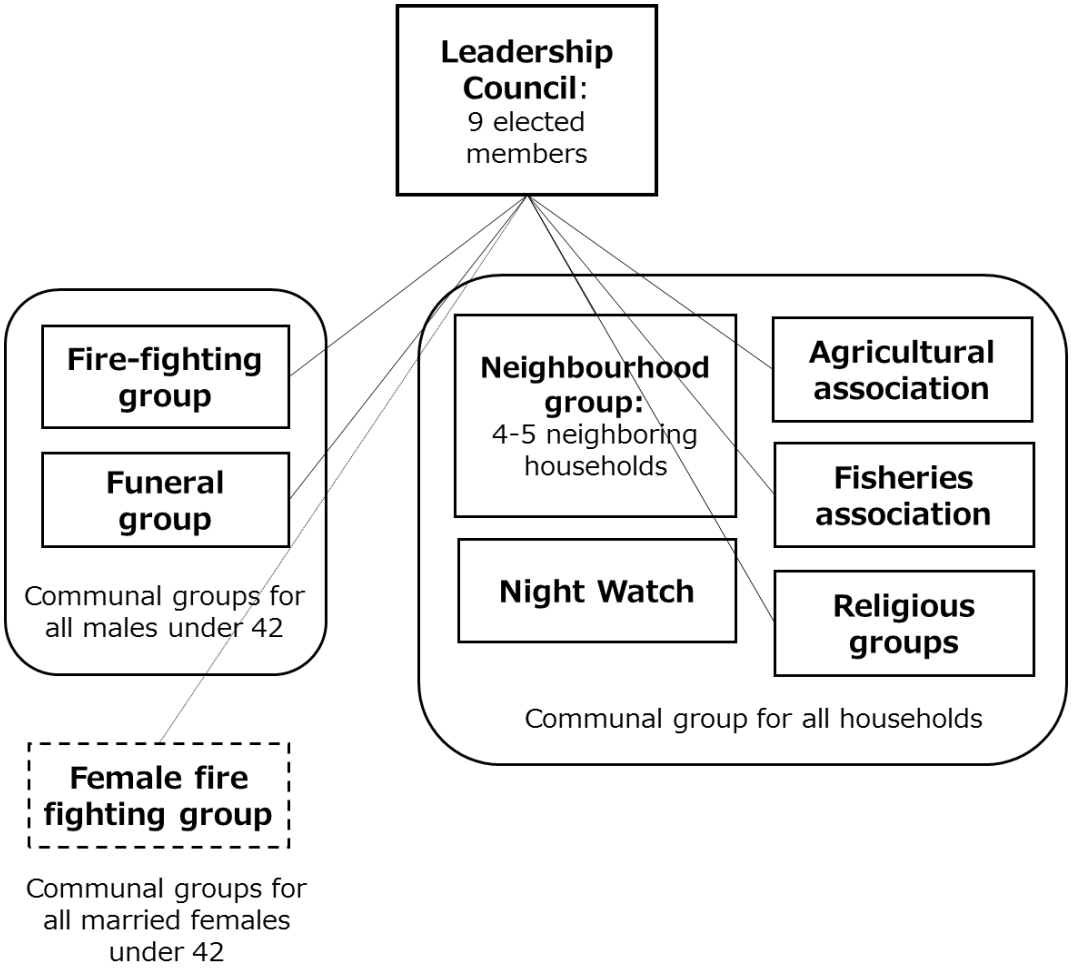
Communal group	Number of interviews	Participant observation
Leadership council	21 (12 group interviews and 9 individual interviews)	Annual meetings Negotiations with the local government
Neighbourhood group	9 (2 group interviews for the group in the neighbourhood where the lead author resided, and 7 interviews for each neighbourhood group chief)	Seasonal religious events/ cleaning events
Agricultural association	5 (2 individual interviews with the representative of the Agricultural association and 3 with individual farmers who cultivated rice until 2006)	N.A.
Fishery association	5 (2 group interviews with the members, 2 individual interviews with the representative of the Fishery association, 1 individual interview with the holder of fishing rights)	Seaweed collection conducted during March and April/ Seaweed festival organised by the community
Fire-fighting group	5 (2 group interviews, 3 individual interviews)	Monthly training for the fire-fighting group
Female fire-fighting group	6 (2 group interviews, 4 individual interviews)	Monthly training for the fire-fighting group
Night watch	N.A.	Rotational night-watch activities
Elderly club	2 (2 group interviews)	
Religious group	2 (2 group interviews)	Religious events, such as 'Bon' during August
Funeral group	2 (2 group interviews)	Funeral in August 2010

609

610

611 **Appendix 2. Organigram of Tai Hamlet**

612



613

614

615

616 **References**

617

618 Agrawal, A., Gibson, C.C., 1999. Enchantment and disenchantment: the role of community in
619 natural resource conservation. World Dev. 27, 629–649.

620 Aoki, M., 2001. Community norms and embeddness: A game-theoric approach, in: Hayami, Y.,
621 Aoki, M. (Eds.), Communities and Markets in Economic Development. Oxford University
622 Press, Oxford, pp. 97–128.

623 Baker, T., Nelson, R.E., 2005. Creating Something from Nothing: Resource Construction
624 through Entrepreneurial Bricolage. Adm. Sci. Q. 50, 329–366.
625 doi:10.2189/asqu.2005.50.3.329

626 Battilana, J., 2006. Agency and Institutions: The Enabling Role of Individuals' Social Position.
627 Organization 13, 653–676.

628 Berbés-Blázquez, M., González, J.A., Pascual, U., 2016. Towards an ecosystem services
629 approach that addresses social power relations. Curr. Opin. Environ. Sustain. 19, 134–143.

630 Bourdieu, P., 1990. The logic of practice. Stanford University Press.

631 Bourdieu, P., 1989. Social space and symbolic power. Sociol. theory 7, 14–25.

632 Büscher, B., 2012. Payments for ecosystem services as neoliberal conservation: (Reinterpreting)
633 evidence from the Maloti-Drakensberg, South Africa. Conserv. Soc. 10, 29.

634 Cabinet Office, 2012. White paper for aging society.

635 Chan, K.M.A., Balvanera, P., Benessaiah, K., Chapman, M., Díaz, S., 2016. Why protect
636 nature ? Rethinking values and the environment. Proc. Natl. Acad. Sci. 113.
637 doi:10.1073/pnas.1525002113

638 Christiansen, Larke, H., Lounsbury, M., 2013. Strange Brew: Bridging Logics Via Institutional
639 Bricolage and the Reconstitution of Organizational Identity : Institutional Logics in Action,
640 Part B [WWW Document]. Res. Sociol. Organ.

641 Cleaver, F., 2012. Development through bricolage: rethinking institutions for natural resource
642 management., Development through bricolage: rethinking institutions for natural resource
643 management. Routledge.

644 Cleaver, F., 2002. Reinventing institutions: Bricolage and the social embeddedness of natural
645 resource management. Eur. J. Dev. Res. 14, 11–30. doi:10.1080/714000425

646 Clegg, S., 2010. The State, Power, and Agency: Missing in Action in Institutional Theory? J.
647 Manag. Inq. 19, 4–13.

648 Crawford, S.E.S., Ostrom, E., 1995. A grammer of institution. Am. Polit. Sci. Rev. 89,
649 582–600.

650 De Koning, J., Cleaver, F., 2012. Institutional bricolage in community forestry: an agenda for
651 future research, in: Forest-People Interfaces. Springer, pp. 277–290.

652 Douglas, M., 1986. How institutions think. Syracuse University Press.

653 Emirbayer, M., Mische, A., 1998. What Is Agency? Am. J. Sociol. 103, 962–1023.

654 Fabinyi, M., Evans, L., Foale, S.J., 2014. Social-ecological systems, social diversity, and power:
655 Insights from anthropology and political ecology. Ecol. Soc. 19.
656 doi:10.5751/ES-07029-190428

657 Foucault, M., 1977. Discipline and punish: The birth of the prison. Vintage.

658 Fujimura, M., 2001. What it does it mean to have "collective property"? (in Japanese), in:
659 Miyauchi, T. (Ed.), Sociology of Commons. Shinyosha, Tokyo.

660 Galvan, D.C., 2004. The state must be our master of fire: How peasants craft culturally
661 sustainable development in Senegal. Univ of California Press.

662 Hall, K., Cleaver, F., Franks, T., Maganga, F., 2014. Capturing Critical Institutionalism: A
663 Synthesis of Key Themes and Debates. Eur. J. Dev. Res. 26, 71–86.

664 Halls, A.J., 1997. Wetlands, biodiversity and the Ramsar convention: the role of the convention
665 on wetlands in the conservation and wise use of biodiversity, in: Ramsar Convention
666 Bureau, Gland, Switzerland. ISBN. Ramsar Convention Bureau, Gland, Switzerland.
667 ISBN.

668 Hasumi, O., 1990. Anguishes of Japanese rural villages: The national policy and the social
669 changes (in Japanese). Yushindo, Tokyo, Japan.

670 Haugaard, M., 2008. Power and habitus. J. Power 1, 189–206.

671 Hendrickson, C.Y., Corbera, E., 2015. Participation dynamics and institutional change in the
672 Scolel Té carbon forestry project, Chiapas, Mexico. Geoforum 59, 63–72.
673 doi:10.1016/j.geoforum.2014.11.022

674 Honda, Y., 2008a. Coexistence with Orietanl White Storks - From a forced coexitence to a
675 communal belongings (in Japanese) . Genjinsha.

676 Honda, Y., 2008b. Re-thinking re-introduction of Oriental White Storks and co-habitation with
677 this birds (in Japanese). Genjin-sha, Tokyo.

678 Hotimsky, S., Cobb, R., Bond, A., 2006. Contracts or scripts? A critical review of the
679 application of institutional theories to the study of environmental change. Ecol. Soc. 11,
680 41.

681 Hyogo Prefectural Government, 2009. Action Plan for the Promotion of Organic Farming in
682 Hyogo Prefecutre (in Japanese).

683 Ishihara, H., Pascual, U., 2009. Social capital in community level environmental governance: A
684 critique. Ecol. Econ. 68, 1549–1562.

685 Kada, Y., 1997. Multiple ownership derived From everyday life practice: Ownership and
686 utilization of communal resources around the Lake Yogo (in Japanese). Japanese Assoc.
687 Environ. Sociol. 3, 72–85.

688 Kawakita, J., 1970. For Creative Ideas 2: KJ method (in Japanese). Chuo-Kouronsha.

689 Kawakita, J., 1967. For Creative Ideas (in Japanese). Chuo-Koronsha.

690 Kikuchi, N., 2006. Revival of the Oriental White Storks (in Japanese). Tokyo University Press,
691 Tokyo, Japan.

692 Kohn, M., 2000. Language, Power, and Persuasion: Toward a Critique of Deliberative
693 Democracy. Constellations 7, 408–429. doi:10.1111/1467-8675.00197

694 Leach, M., Mearns, R., Scoones, I., 1999. Environmental entitlements: dynamics and
695 institutions in community-based natural resource management. World Dev. 27, 225–247.

696 Lévi-Strauss, C., 1966. The savage mind. University of Chicago Press.

697 Long, N., Long, A., 1992. Battlefields of knowledge : the interlocking of theory and practice in
698 social research and development. Routledge.

699 Lounsbury, M., Glynn, M.A., 2001. Cultural entrepreneurship: stories, legitimacy, and the
700 acquisition of resources. Strateg. Manag. J. 22, 545–564. doi:10.1002/smj.188

701 Maeda, M., Takao, K., 2007. Connecting rural and urban communities: Terraced paddy field
702 owner system (in Japanese). Maruzen, Tokyo.

703 Martins, N., 2009. Rules, social ontology and collective identity. J. Theory Soc. Behav. 39,
704 323–344.

705 McCay, B.J., 2002. Emergence of Institutions for the Commons: Contexts, Situations, and
706 Events. The Drama of the Commons 361–402.

707 McKean, M.A., 1992. Management of traditional common lands (Iriaichi) in Japan. Mak.
708 commons Work. Theory, Pract. policy 1st editio, 63–98.

709 Milne, S., Adams, B., 2012. Market Masquerades: Uncovering the Politics of Community-level
710 Payments for Environmental Services in Cambodia. Dev. Change 43, 133–158.

711 Minato Community Centre, 1965. History of Minato village (in Japanese).

712 Mitsumata, G., Inoue, M., 2010. Possibility of local commons: New relationship between
713 self-governance and envrionment (in Japanese). Mineruva Shobo.

714 Mitsumata, G., Morimoto, S., Murota, T., 2008. The Frontiers of the Study of Commons:
715 Common World of Mountains/Sea/Rivers (in Japanese). Tokyo University Press, Tokyo.

716 Morimoto, M., 2014. Degradation of ecosystem service caused by the underuse of commons (in
717 Japanese). Sociol. Theory Methods 29, 261–276.

718 Mosse, D., 1997. The symbolic making of a common property resource: history, ecology and
719 locality in a tank irrigated landscape in South India. Dev. Change 28, 467–504.

720 Muradian, R., Arsel, M., Pellegrini, L., Adaman, F., Aguilar, B., Agarwal, B., Corbera, E.,
721 Ezzine de Blas, D., Farley, J., Froger, G., Garcia-Frapolli, E., G??mez-Baggethun, E.,
722 Gowdy, J., Kosoy, N., Le Coq, J.F., Leroy, P., May, P., M??ral, P., Mibielli, P., Norgaard,
723 R., Ozkaynak, B., Pascual, U., Pengue, W., Perez, M., Pesche, D., Pirard, R.,
724 Ramos-Martin, J., Rival, L., Saenz, F., Van Hecken, G., Vatn, A., Vira, B., Urama, K.,
725 2013. Payments for ecosystem services and the fatal attraction of win-win solutions.
726 Conserv. Lett. 6, 274–279.

727 Muradian, R., Corbera, E., May, P.H., 2010. Reconciling theory and practice: An alternative
728 conceptual framework for understanding payments for environmental services. Ecol. Econ.
729 69, 1202–1208.

730 Murota, T., Mitsumata, G., 2004. Iriai Forest and Commons: Sustainable Shared Forest (in
731 Japanese). Nihon-Hyoronsha, Tokyo.

732 Nakajima, M., 2007. Terraced paddy fields owener system: its development, typology and
733 evaluation (in Japanese). Connect. Rural urban areas 57, 26–35.

734 Narloch, U., Pascual, U., Drucker, A., 2012. Collective Action Dynamics under External
735 Rewards: Experimental Insights from Andean Farming Communities. World Dev. 40,
736 2096–2107.

737 NGO Wetlands Action Circle for Oriental White Storks, 2012. Challenges of Tai hamlet (in
738 Japanese).

739 Norgaard, R.B., 2010. Ecosystem services: From eye-opening metaphor to complexity blinder.
740 Ecol. Econ. 69, 1219–1227.

741 North, D.C., 1990. Institutions, institutional change and economic performance. Cambridge
742 university press.

743 Ohnuma, A., Yamamoto, M., 2009. Economic analysis of returning the white storks to the wild
744 in Toyooka City, Hyogo Prefecture: economic rationale for adopting white stork friendly
745 farming method and the effect of returning the white storks to the wild on the local
746 economy (in Japanese). J. Assoc. Mita 102, 191–211.

747 Ojha, H.R., Ford, R., Keenan, R.J., Race, D., Carias Vega, D., Baral, H., Sapkota, P., 2016.
748 Delocalizing Communities: Changing Forms of Community Engagement in Natural
749 Resources Governance. World Dev. xx. doi:10.1016/j.worlddev.2016.06.017

750 Onda, M., 2006. Reciprocal society: Ethnographical sociology of “Yui”, “Moyai” and “Tetsudai”
751 (in Japanese). Sekai Shisou-sha, Kyoto.

752 Osborne, T.M., 2011. Carbon forestry and agrarian change: access and land control in a
753 Mexican rainforest. J. Peasant Stud. 38, 859–883. doi:10.1080/03066150.2011.611281

754 Ostrom, E., 1992. Crafting Institutions for Self-Governing Irrigation Systems, ICS Press.
755 Institute for Contemporary Studies. doi:10.1002/rrr.3450080314

Ostrom, E., 1990. Governing the commons: The evolution of institutions for collective action. Cambridge university press.

Ostrom, E., Ahn, T.K., 2009. The meaning of social capital and its link to collective action, in: Svendsen, G.T., Svendsen, G.L.H. (Eds.), Handbook of Social Capital: The Troika of Sociology, Political Science, and Economics. Edward Elgar, Cheltenham, Glos, UK ; Northampton, MA, p. xvii, 460 .

Palomo, I., Felipe-Lucia, M.R., Bennett, E.M., Martín-López, B., Pascual, U., 2016. Chapter Six – Disentangling the Pathways and Effects of Ecosystem Service Co-Production, in: Advances in Ecological Research. pp. 245–283.

Pascual, U., Muradian, R., Rodriguez, L.C., Duraiappah, A., 2010. Exploring the links between equity and efficiency in payments for environmental services: A conceptual approach. Ecol. Econ. 69, 1237–1244. doi:10.1016/j.ecolecon.2009.11.004

Pascual, U., Phelps, J., 2014. Social equity matters in payments for ecosystem services. ….

Pascual, U., Phelps, J., Garmendia, E., Brown, K., Corbera, E., Martin, A., Gomez-Baggethun, E., Muradian, R., 2014. Social Equity Matters in Payments for Ecosystem Services. Bioscience 64, 1027–1036.

Peacock, M., 2011. Sen's apples: Commitment, agent relativity and social norms. Ration. Mark. Morals 2, 35–47.

Reay, T., Hinings, C.R., 2005. The recomposition of an organizational field: Health care in Alberta. Organ. Stud. 26, 351–384. doi:10.1177/0170840605050872

Rodríguez-de-Francisco, J.C., Budds, J., 2015. Payments for environmental services and control over conservation of natural resources: the role of public and private sectors in the conservation of the Nima Watershed, Colombia. Ecol. Econ. 117, 295–302.

Rodríguez de Francisco, J.C., Budds, J., Boelens, R., 2013. Payment for Environmental Services and Unequal Resource Control in Pimampiro, Ecuador. Soc. Nat. Resour. 26, 1217–1233.

Sato, I., 2008. Method for analyising qualitative data (in Japanese). Shiyosha, Tokyo.

Schnegg, M., Linke, T., 2015. Living institutions: Sharing and sanctioning water among pastoralists in Namibia. World Dev. 68, 205–214. doi:10.1016/j.worlddev.2014.11.024

Schneiberg, M., 2002. Organizational Heterogeneity and the Production of New Forms: Politics, Social Movements and Mutual Companies in American Fire Insurance, 1900-1930, in:

Lounsbury, M., Ventresca, M.J., Schneiberg, M. (Eds.), Research in the Sociology of Organizations. Emerald Group Publishing Limited, pp. 39–89. doi:doi:10.1016/S0733-558X(02)19002-1

Sen, A., 1982. Choice, welfare, and measurement, 1st MIT Pr. ed. MIT Press, Cambridge, Mass.

Seo, M.-G., Creed, W.E.D., 2002. Institutional Contradictions, Praxis, and Institutional Change: a Dialectical Perspective. Acad. Manag. Rev. 27, 222–247.

Sewell, W.H.J., 1992. A Theory of Structure: Duality, Agency, and Transformation. Am. J. Sociol. 98, 1–29.

Shapiro-Garza, E., 2013. Contesting the market-based nature of Mexico's national payments for ecosystem services programs: Four sites of articulation and hybridization. Geoforum 46, 5–15. doi:10.1016/j.geoforum.2012.11.018

Shimada, D., 2015. Multi-level natural resources governance based on local community: A case study of semi-natural grassland in Tar??ji, Nara, Japan. Int. J. Commons 9, 486–509.

Tanaka, K., 2008. Legal framework concerning wetland conservation and its challenges (in Japanese). Annu. Econ. Reveiw by Nagasaki Univ. 24, 51–74.

Torigoe, H., 2007. Researching Rural Community (in Japanese). Nousangyoson Bunka Kyokai, Tokyo.

Torigoe, H., 1993. Sociology of households and villages (in Japanese). Sekaishisosha, Tokyo.

Toyoka Municipal Government, 2007a. Toyoka environmental economic strategy (in Japanese).

Toyoka Municipal Government, 2007b. History of Oriental White Storks (in Japanese).

Van Hecken, G., Bastiaensen, J., Windey, C., 2015. Towards a power-sensitive and socially-informed analysis of payments for ecosystem services (PES): Addressing the gaps in the current debate. Ecol. Econ. 120, 117–125.

Vatn, A., 2010. An institutional analysis of payments for environmental services. Ecol. Econ. 69, 1245–1252.

Wade, R., 1989. Village republics. Cambridge University Press.

Wittgenstein, L., 1968. Wittgenstein's Family Resemblance. Philos. Investig.

Wittmer, H., Gundimeda, H., 2010. TEEB For local and regional policy makers.

Yamamoto, S., 2003. Reorganization of irrigation system due to land improvement: A Case-study of Izeya System at Ogi District in Otsu City, Shiga Prefecture (in Japanese). Japanese Assoc. Environ. Sociol. 9, 185–201.

Young, O.R., 2002. Institutional interplay: The environmental consequences of cross-scale interactions. The drama of the commons 263–291.